

Appl. No. 10/007,186
Amdt. Dated: September 12, 2005
Office Action Dated: May 13, 2005

• • R E M A R K S / A R G U M E N T S • •

The present Preliminary Amendment is being submitted together with a Request for Continued Examination (RCE).

By the present Preliminary Amendment, independent claims 1 and 4 have been changed to recite that the step of leaving the plant seed in a highly watery condition involves immersing the plant seed in water at a temperature of from 0 °C to 15 °C for a period of time of from several days to several months and to recite that the step of drying the plant seed the dark place involves a sufficiently dark environment to prevent exposure of the plant seed to an amount of light that is sufficient to cause the plant seed to germinate.

The changes for the claims are supported in the second full paragraph on page 4 of applicant's original specification and are responsive to issues raised by the Examiner under 35 U.S.C. §112, first and second paragraphs, in the Office Action of May 13, 2005.

In addition, independent claim 1 has been changed to recite that the method prevents both defective germination and defective rosette formation, and independent claim 4 has been changed to recite that the method prevents at least one of defective germination and defective rosette formation.

These changes to the independent claims were made to emphasize that the present invention provides a method to prevent either or both defective germination and defective rosette formation.

Appl. No. 10/007,186
Amdt. Dated: September 12, 2005
Office Action Dated: May 13, 2005

In addition, new claim 5 has been added which is directed to a method of preventing defective rosette formation.

Entry of the changes to the claims prior to continuing examination of the application is respectfully requested.

Claims 1, 4 and 5 are pending in this application.

On page 2 of the Office Action of May13, 2005 the Examiner rejected claims 1-3 under 35 U.S.C. §112, first paragraph. Under this rejection the Examiner took the position that "applicant has not claimed or clearly defined in the specification the "sufficient period of time to inhibit defective germination or rosette formation' for the hydration step."

The Examiner further stated that "Applicant has not clearly defined in the specification what 'defective germination' is."

In response to this rejection, the independent claims have been changed to recite that the step of leaving the plant seed in a highly watery condition involves immersing the plant seed in water at a temperature of from 0 °C to 15 °C for a period of time of from several days to several months.

In actual tests, seeds were subjected to the highly watery condition for at least over one night to up to twelve months. Therefore, it is believed that the recited time period of several days to several months encompasses a range that those skilled in the art can easily determine with minimum experimentation as being useful, thus satisfying the requirements of 35 U.S.C. §112.

It is well known to those skilled in the art that the International Seed Testing Association (ISTA) recommends tests for evaluating seed germination. Seed germination is known to involve a

Appl. No. 10/007,186
Amdt. Dated: September 12, 2005
Office Action Dated: May 13, 2005

count of normal seedlings. Normal seedlings are reported as a "first count" after so many days and then as a "final count." The period of test time varies with seed species. Assessments for germination are made on the basis of criteria established by the ISTA and include for example a matrix for germination, temperature, the period of time for the tests, etc.

Abnormal seedlings that demonstrate defective germination are those seedlings that have damage to their plant structures which would either result in death or severe competitive disadvantage in the field. Fresh seeds are healthy seeds that have taken up water, but which have not begun to germinate. A high lever of fresh ungerminated seed indicates a dormant seed lot. Dead seeds are those that show signs of decay.

Exhibit "A" submitted in applicant's Amendment After Final is a document titled "The Condition for Germinating Grasses Based on IRST." An English translation of this document was also included

It is submitted that one skilled in the art of seed germination would be familiar with the ISTA and standard methods for evaluating seed germination and the terminology involved.

On pages 2-3 of the Office Action of May 13, 2005 the Examiner has rejected claims 1 and 4 under 35 U.S.C. §112, second paragraph.

Under this rejection the Examiner took the position that the phrase "the dark place" lacked proper antecedent basis in the claims. The amendments to the claims presented above are believed to address and overcome this basis for rejecting the claims.

Appl. No. 10/007,186
Amdt. Dated: September 12, 2005
Office Action Dated: May 13, 2005

In the Office Action of May 13, 2005 the Examiner rejected claims 1 and 4 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,107,051 to Job et al. in view of U.S. Patent No. 5,294,593 to Khan.

In addition, claims 1 and 4 were rejected under 35 U.S.C. §103(a) as being unpatentable over Coolbear et al., *An Evaluation of the Potential of Low Temperature Pre-Sowing Treatments of Tomato Seeds as Means of Improving Germination Performance*, Ann. appl. Biol. (1987), 110, pp. 185-194 (1987) in view of Khan.

For the reasons set forth below, it is submitted that all of the pending claims are allowable over the prior art of record.

Favorable reconsideration by the Examiner is earnestly solicited.

Job et al. is directed to studying and qualifying a protein marker that can be used to evaluate a seed soaking process and thereby monitor seeds during a soaking process to control and improve the germination capacity of the seeds.

Khan is directed at inducing dormancy in non-dormant seeds using a method which involves soaking the seeds in a solution of gibberellin synthesis inhibitor (without any discussion as to whether gibberellin synthesis inhibitor effects rosette formation and vernalization).

Job et al. cites and refers to Coolbear et al. throughout the disclosure.

Coolbear et al. teaches a low temperature pre-sowing treatment in which seeds were allowed to imbibe distilled water in order to improve germination performance.

Appl. No. 10/007,186
Amdt. Dated: September 12, 2005
Office Action Dated: May 13, 2005

In each instance, the prior art relied upon by the Examiner is only concerned with seed priming which should not be confused with the prevention of defective rosette formation and vernalization.

In the seed priming techniques of the prior art or record, the seeds are generally hydrated and then dried before germination. However, seed priming can only suppress the initiating step of germination.

The prior art does not teach any correlation between the use of seed priming techniques which effect germination and the present invention which is directed at the prevention of defective germination as well as defective rosette formation and vernalization.

None of the prior art even mentions the prevention of defective rosette formation and vernalization.

Accordingly, absent such a teaching, let alone even a reference to, or mention of, defective rosette formation and vernalization, the prior art cannot be relied upon as anticipating or rendering obvious applicant's claimed invention.

Moreover the Examiner cannot take the position that the prior art "inherently" renders applicant's invention obvious, inasmuch as:

Inherency and obviousness are entirely different concepts. (See *In re Rinehart*, 189 USPQ 143 (CCPA 1976))

Moreover, as held by the CCPA in *In re Shetty*:

Inherency is quite immaterial if, as the record establishes here, one of ordinary skill in the art would not appreciate or recognize that inherent result.

Appl. No. 10/007,186
Amdt. Dated: September 12, 2005
Office Action Dated: May 13, 2005

The inherency of an advantage and its obviousness are entirely different questions. That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is known. (*In re Shetty*, 195 USPQ 753 (CCPA 1977)).

It is further noted that the Examiner is not allowed to rely upon applicant's own disclosure as teaching what is not found in the prior art.

As those skilled in the art recognize, the mechanism of plant growth is well documented and proceeds as follows: After germination, plants develop a rosette of leaves at the ground level ("rosette formation"). In the next step plant stems are produced during the vernalization step ("vernalization" comes from the Russian word yarovizatsya which means "to make or become spring").

The prior art references relied upon by the Examiner are limited to the study of germination.

However, after successful germination the plants can still fail and die if they do not have successful rosette formation and proceed to vernalization.

In contrast to the prior art, applicant's invention is based upon the study of rosette formation and vernalization as shown in the Examples and data presented in Tables 2 and 4 (note stem length is used to quantify vernalization).

Moreover, applicant specifically tested seeds that were known to take a relatively large number of days to germinate and which were known to easily suffer from rosette formation and concluded that the method of the present invention prevents both defective germination and defective rosette formation.

The Examiner has applied the combined the teachings of the prior art under 35 U.S.C. §103.

Appl. No. 10/007,186
Amdt. Dated: September 12, 2005
Office Action Dated: May 13, 2005

Obviousness under 35 U.S.C. §103 cannot be established in the present situation when the prior art is completely silent regarding rosette formation and vernalization.

That is, the prior art does not at all appreciate applicant's discovery, so it cannot be said that the prior art renders applicant's invention obvious.

The Examiner is referred to the holding by the federal circuit in *In re Kaslow*:

It should not be necessary for this court to point out that a patentable invention may be in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified. This is part of the "subject matter as a whole" which should always be considered in determining the obviousness of an invention under 35 USC 103. *In re Kaslow*, 217 USPQ 1089 (Fed. Cir. 1983)

In the present situation it can be readily concluded that the source of the problem, i.e. defective rosette formation (and vernalization), which applicant's invention solves is not at all recognized by the prior art relied upon by the Examiner.

Accordingly, applicant's solution cannot be found obvious over the teachings of the prior art.

It is further noted that each of the rejections of the claims relies upon a combination of prior art references.

It therefore cannot be said that the combined teachings of the references, neither of which even mention rosette formation, in any way render obvious applicant's claimed invention.

Combining any number of references that do not individually teach preventing defective rosette formation will never result in rendering preventing defective rosette formation obvious,

Appl. No. 10/007,186
Amdt. Dated: September 12, 2005
Office Action Dated: May 13, 2005

because obvious under 35 U.S.C. §103 is founded upon what the prior art teaches or suggests to those skilled in the art. That which is not taught simply can never be "obvious."

Moreover, as noted above, "Inherency and obviousness are entirely different concepts" and "Inherency is quite immaterial if, as the record establishes here, one of ordinary skill in the art would not appreciate or recognize that inherent result."

Based upon the above distinctions between the prior art relied upon by the Examiner and the present invention, and the overall teachings of prior art, properly considered as a whole, it is respectfully submitted that the Examiner cannot maintain reliance upon the prior art as required under 35 U.S.C. §103 to establish a *prima facie* case of obviousness of applicant's claimed invention.

It is, therefore, submitted that any reliance upon prior art would be improper inasmuch as the prior art does not remotely anticipate, teach, suggest or render obvious the present invention.

It is submitted that the claims, as now amended, and the discussion contained herein clearly show that the claimed invention is novel and neither anticipated nor obvious over the teachings of the prior art and the outstanding rejections of the claims should hence be withdrawn.

Therefore, reconsideration and withdrawal of the outstanding rejection of the claims and an early allowance of the claims is believed to be in order.

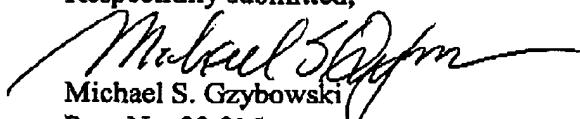
It is believed that the above represents a complete response to the Official Action and reconsideration is requested.

Appl. No. 10/007,186
Amdt. Dated: September 12, 2005
Office Action Dated: May 13, 2005

If upon consideration of the above, the Examiner should feel that there remain outstanding issues in the present application that could be resolved, the Examiner is invited to contact applicant's patent counsel at the telephone number given below to discuss such issues.

To the extent necessary, a petition for an extension of time under 37 CFR §1.136 is hereby made. Please charge the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 12-2136 and please credit any excess fees to such deposit account.

Respectfully submitted,



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